

Remarks

Claims 1-18 stand rejected. New claims 19-24 have been added. Support for new claims 19-24 can be found at paragraph [0045] of the application.

The examiner rejected claims 1-3, 10, 11, and 18 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako because Lansford discloses a method for controlling photoresist baking process and Amako discloses a curable organopolysiloxane composition. The examiner admits that Lansford fails to disclose a negative photoresist is a photopatternable silicone composition comprising (A) an organopolysiloxane containing an average of at least two silicon-bonded alkenyl groups per molecule, (B) an organosilicon compound containing an average of at least two silicon-bonded hydrogen atoms per molecule, and (C) a catalytic amount of a photoactivated hydrosilylation catalyst. However, the examiner concludes these features are well known and would have been an obvious modification of the method of Lansford because Amako discloses a curable organopolysiloxane composition and cured products obtainable therefrom.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure MPEP §2143.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure MPEP §2143. Even where the combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held

Page 7 of 14

improper MPEP §2143.01. The level of skill in the art cannot be relied upon to provide the suggestion to combine references MPEP §2143.01. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination MPEP §2143.01. A statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references MPEP §2143.01.

To rely on a reference under 35 U.S.C. §103, the reference must be an analogous prior art MPEP §2141.01(a). To rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned MPEP §2141.01(a). A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem MPEP §2141.01(a).

A conclusion of obviousness based upon a reconstruction taking into account knowledge that was not within the level of ordinary skill in the art at the time the claimed invention was made is improper hindsight, for example, knowledge gleaned only from applicant's disclosure MPEP §2145 (X)(A).

That ‘obvious to try’ is not the standard under § 103 has been directed mainly at two kinds of error. In some cases, what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. . . . In others,

what was 'obvious to try' was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it MPEP §2145 (X)(B).

Amako discloses a curable organopolysiloxane composition that cures by heating at 50 to 250 °C (paragraph [0039]). Nothing in the disclosure of Amako teaches or suggest photopatterning the composition of Amako. Therefore, nothing in the disclosure of either Lansford or Amako would motivate one skilled in the art to use a (heat) curable organopolysiloxane composition of Amako as a photoresist in the process of Lansford, and the first criterion for establishing a *prima facie* case of obviousness has not been met.

Prior art must be considered in its entirety, including disclosures that teach away from the claims MPEP §2145 (X)(D), MPEP §2143.01. The proposed modification cannot render the prior art unsatisfactory for its intended purpose or change the principle of operation of a reference MPEP §2145 (X)(D), MPEP §2143.01. A prior art reference that "teaches away" from the claimed invention is a significant factor to be considered in determining obviousness MPEP §2145 (X)(D). It is improper to combine references where the references teach away from their combination MPEP §2145 (X)(D).

Amako discloses that pigments can be added to the composition for the purpose of imparting color and various fillers can be added for improving strength, thermal conductivity, and electrical conductivity (paragraph [0038]). One skilled in the art would recognize that such ingredients can cause the composition and cured product thereof to be opaque. Therefore, one skilled in the art would not be motivated to modify the photopatterning process Lansford to include the composition of Amako because if the composition is opaque, one skilled in the art would expect cure by exposure to a light source (as described by Lansford at col. 1, line 41) to be detrimentally affected.

The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success MPEP §2143.02. At least some degree of predictability is required MPEP §2143.02. Evidence showing there was no reasonable expectation of success may support a conclusion of nonobviousness MPEP §2143.02. Whether an art is predictable or whether the proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made MPEP §2143.02.

One skilled in the art would not have a reasonable expectation of success to arrive at the present invention based on the disclosures of Lansford and Amako. Amako discloses many hydrosilylation catalysts that are not photoactivated, such as the chloroplatinic acid/1,3-divinyltetramethyldisiloxane complex in examples 1 and 2 (paragraphs [0050]) and [0054]). For the reasons discussed above, nothing in the disclosure of either Lansford or Amako would provide a reasonable expectation of success to one skilled in the art to use a heat curable organopolysiloxane composition of Amako as a photoresist for photolithography patterning in the process of Lansford because the process of Lansford involves exposing the photoresist to a light source and UV baking to improve cross-linking (col. 3, lines 23-40 of Lansford). Furthermore, Amako discloses a curable organosiloxane composition comprising (A) an organopolysiloxane containing an average of at least 2 alkenyl groups and at least 2 silicon bonded hydrogen atoms per molecule; (B) a compound containing alkenyl and hydroxyphenyl groups in each molecule, and (C) a hydrosilylation catalyst (abstract). Nothing in the disclosures of Amako and Lansford teach or suggest replacing components (A) and (B) of Amako with a different organopolysiloxane and organosilicon compound containing silicon bonded hydrogen atoms and using this modified composition in the process of Lansford. For these reasons, the second criterion for establishing a *prima facie* case of obviousness has not been met.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art MPEP §2143.03. All words in a claim

must be considered in judging the patentability of that claim against the prior art MPEP §2143.03.

Lansford in view of Amako fails to disclose all of the limitations of the claims in this invention because Lansford in view of Amako does not teach UV curing of the silicone composition of Amako, and the ingredients in the composition of Amako differ from the ingredients in the composition used in claims 1 and 2 herein. Therefore, the third criterion has not been established for a *prima facie* case of obviousness.

The examiner rejected claims 3, 10, 11, and 18 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako for the reasons discussed above and because Lansford discloses a method for controlling photoresist baking process where the substrate is an active surface of a wafer. The examiner interprets the active surface as being a surface compatible to photoresist. The examiner further argues the Lansford discloses use of the method for rework, photoresist, or cleaning applications.

Not all of the criteria for establishing a *prima facie* case of obviousness have been established for the reasons discussed above. If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious MPEP §2143.03. Claims 3 and 10 are dependent on claim 1, and claims 11 and 18 are dependent on claim 2. Therefore, the applicants respectfully request withdrawal of the rejection of claims 1-3, 10, 11, and 18 under 35 U.S.C. §103(a) over Lansford in view of Amako.

The examiner rejected claims 4, 6-8, 12, and 14-16 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako as applied to claims 1 and 2 and further in view of Belani. The examiner admits that Lansford in view of Amako fails to disclose substantial features of the invention; the removing step carried out using an etching solution comprising an organic solvent and a base (4 and 12) where the organic solvent is selected from a monohydric alcohol, a dihydric alcohol, a monoether, a diether, a polar aprotic solvent, and combinations

Page 11 of 14

thereof (6 and 14); the base is selected from ammonium hydroxide, cesium hydroxide, potassium hydroxide, and sodium hydroxide (7 and 15) and the base is selected from phosphazene, tetraalkyl ammonium hydroxides (8 and 16). The examiner concludes these are well known features and would have been an obvious modification of the method as evidenced by Belani. Belani discloses a polymeric insulation layer etching process and composition. The examiner concludes that one skilled in the art would have readily recognized the advantages and desirability of modifying Lansford in view of Amako using a conventional etch solution of Belani.

Claims 4, 6-8, 12, and 14-16 are not obvious for the same reasons discussed above for claims 1-3, 10, 11, and 18. Furthermore, Belani teaches away from this invention because Belani discloses a polyimide coating. Waycoat Negative resist from Olin Hunt is used in the examples, not a photopatternable silicone composition comprising (A) an organopolysiloxane containing an average of at least two silicon-bonded alkenyl groups per molecule, (B) an organosilicon compound containing an average of at least two silicon-bonded hydrogen atoms per molecule in a concentration sufficient to cure the composition, and (C) a catalytic amount of a photoactivated hydrosilylation catalyst. One skilled in the art would not have a reasonable expectation of success that using an etchant composition of Belani with a heat cured composition of Amako would provide a benefit in the process of Lansford. There is no reasonable expectation of success to arrive at this invention. Furthermore, Belani discloses that the etchant composition comprises a water solution of an amine etchant (col. 3, lines 37-43). For these reasons, the applicants request that the rejection of claims 4, 6-8, 12, and 14-16 under 35 U.S.C. §103(a) be withdrawn and all claims allowed to issue.

The examiner rejected claims 5 and 13 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako and Belani as described above and further in view of Birdsley. The examiner admits that Lansford in view of Amako and Belani fails to disclose the etching solution contains no more than 25 % water. The examiner concludes this feature is well known and would have been an obvious modification in the method disclosed by Lansford in view of Amako

Page 12 of 14

and Belani because Birdsley discloses a selective back side wet etch with an etching solution that contains no more than 25 % water.

The applicants request that the rejection of claims 5 and 13 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako and Belani and further in view of Birdsley be withdrawn and all claims allowed to issue because claims 5 and 13 are not obvious for the same reasons discussed above for claims 1-4, 6-8, 10-12, 14-16, and 18. Birdsley does not cure the defects of Lansford in view of Amako and Lansford in view of Amako and Belani for the reasons discussed above.

The examiner rejected claims 9 and 13 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako as described above and further in view of Bierhenke. The examiner admits that Lansford in view of Amako fails to disclose where the solvent is a monohydric alcohol. The examiner further argues that this feature is well known and would have been an obvious modification of the method of Lansford in view of Amako because Bierhenke discloses a method of producing relief structures where the solvent is a monohydric alcohol.

The applicants request that the rejection of claims 9 and 13 under 35 U.S.C. §103(a) as being unpatentable over Lansford in view of Amako and further in view of Bierhenke be withdrawn and all claims allowed to issue because claims 5 and 13 are not obvious for the same reasons discussed above. Bierhenke does not cure the defects of Lansford in view of Amako for the reasons discussed above.

The initial burden is on the examiner to provide some suggestion of the desirability for doing what the inventor has done. When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper MPEP §2142.

If the examiner believes there is factual support for rejecting the claimed invention under 35 U.S.C. §103, the examiner **must** then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant MPEP §2142.

This reply is being submitted within the period for response to the outstanding office action. Although the applicants believe in good faith that no extensions of time are needed, the applicants hereby petition for any necessary extensions of time. You are authorized to charge deposit account 04-1520 for any fees necessary to maintain the pendency of this application. You are authorized to make any additional copies of this sheet needed to accomplish the purposes provided for herein and to charge any fee for such copies to deposit account 04-1520.

Respectfully Submitted,
Dow Corning Corporation



Catherine Brown
Reg. No. 44,565
Tel: 989-496-1725